

WHAT IS CLAIMED IS:

1. An optical pick-up device, comprising:

5 a system driving integrated circuit (IC) for providing a tracking control signal, a focusing control signal and a tilting control signal to drive at least one actuator;

10 the actuator driven in response to a sum signal and a difference signal, associated with the focusing control signal and the tilting control signal, and the tracking control signal; and

15 a current feedback unit for outputting, to corresponding coils of the actuators, voltages corresponding to the sum and difference signals generated by combining the focusing control signal and the tilting control signal and the tracking control signal, sensing currents applied to the actuator coils, and applying feedback signals to the actuator to control voltage sensitivity and phase of the actuator.

20 2. The optical pick-up device as set forth in claim 1, wherein the current feedback unit is implemented by a one-chip application specific integrated circuit (ASIC), and is mounted on a base surface of the optical pick-up device.

25 3. The optical pick-up device as set forth in claim 1, wherein the feedback signals generated by the current feedback

unit are negative feedback signals.

4. The optical pick-up device as set forth in claim 1, wherein the current feedback unit comprises:

5 a plurality of coil current sensors for sensing magnitudes of the currents corresponding to the voltages applied to the actuator;

a plurality of current-feedback amplifiers for outputting the feedback signals for controlling the voltage sensitivity in response to the sensed coil currents;

10 operation amplifiers for outputting the sum signal and the difference signal associated with the focusing control signal and the tilting control signal;

a plurality of adders each outputting an actuator driving signal by adding an output of each operation amplifier to an output of each current-feedback amplifier; and

15 a plurality of amplifiers each amplifying the actuator driving signal and outputting the amplified signal.

20 5. The optical pick-up device as set forth in claim 4, wherein each coil current sensor senses a coil current from a voltage at an end of a resistor connected to an actuator coil in serial.

25 6. The optical pick-up device as set forth in claim 5,

wherein a resistance value of the resistor is 1Ω .

7. A tilt actuator being driven in response to a sum signal and a difference signal, associated with a focusing control signal and a tilting control signal, and a tracking control signal, comprising:

a current feedback unit for outputting, to corresponding coils of the actuator, voltages corresponding to the sum and difference signals generated by combining the focusing control signal and the tilting control signal and the tracking control signal, sensing currents applied to the actuator coils, and generating feedback signals to control voltage sensitivity and phase of the actuator.

8. The tilt actuator as set forth in claim 7, wherein the actuator is a moving-magnet type actuator.

9. The tilt actuator as set forth in claim 7, wherein the current feedback unit is implemented by a one-chip application specific integrated circuit (ASIC), and is mounted on a base surface of an optical pick-up.

10. The tilt actuator as set forth in claim 7, wherein the feedback signals generated by the current feedback unit are negative feedback signals.

11. The tilt actuator as set forth in claim 7, wherein the current feedback unit comprises:

5 a plurality of coil current sensors for sensing magnitudes of the currents corresponding to the voltages applied to the actuator;

a plurality of current-feedback amplifiers for outputting the feedback signals for controlling the voltage sensitivity in response to the sensed coil currents;

10 operation amplifiers for outputting the sum signal and the difference signal associated with the focusing control signal and the tilting control signal;

a plurality of adders each outputting an actuator driving signal by adding an output of each operation amplifier
15 to an output of each current-feedback amplifier; and

a plurality of amplifiers each amplifying the actuator driving signal and outputting the amplified signal.

12. The tilt actuator as set forth in claim 11, wherein
20 each coil current sensor senses a coil current from a voltage at an end of a resistor connected to an actuator coil in serial.